WHAT IS CLAIMED IS

[c1] A method of estimating scatter in an image, where radiation from a radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, comprising the steps of:
explicitly modeling an effect of angular incidence of the radiation on a scatter signal, including deriving, using an empirically based correction which includes the effect of an angle of incidence of the radiation on the detector, an estimate of the scatter signal in image data derived from the incident radiation on the detector.

[c2] A method as set forth in claim 1, further comprising the step of calibrating the scatter signal depending on an angle of incidence of radiation and a thickness of the imaged object.

[c3] A method as set forth in claim 1, further comprising the step of re-normalizing the scatter signal depending on an angle of incidence of radiation and a thickness of the imaged object.

[c4] A method as set forth in claim 1, further comprising the step of correcting scatter from the image using inverse-filtering.

[c5] A method as set forth in claim 1, further comprising the step of subtracting the estimate of the scatter signal from a total image derived using data based on the radiation incident on the detector, to obtain an image which is scatter corrected.

[c6] A method of calculating and removing scatter from an image, where radiation emitted from a source is transmitted through an imaged object, is incident on a detector at an acute angle, comprising:
explicitly modeling the effect of angular incidence of radiation in a scatter signal;
re-normalizing the scatter signal depending on the angle of incidence of radiation and the thickness of the object imaged; and
correcting scatter from an image based on inverse-filtering.

[c7] A method of estimating scatter in an X-ray image, where radiation emitted from

an X-ray source is transmitted through an imaged object and is incident on the X-ray detector at an acute angle, comprising:

explicitly modeling the effect of angular incidence of X-ray radiation in a scatter signal; and

calculating, via convolution, an estimate of the scatter signal in an X-ray image.

[c8] A method of estimating an asymmetrical scatter kernel wherein asymmetry is introduced by angular incidence of radiation, which has been emitted from a source and transmitted through an object to be imaged, on a detector, comprising:

modifying scatter that would be derived wherein the radiation is directly incident on the detector with zero degrees of inclination, using an asymmetry factor which indicates the shape and magnitude of the scatter kernel and which varies with an angle at which the radiation is incident on the detector, a mean attenuation coefficient of the object, and a distance the radiation has traveled through the object.

[c9] A computer readable medium encoded with a program executable by a computer for estimating scatter in an image wherein radiation from a radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, said program being configured to instruct the computer to

explicitly model an effect of angular incidence of the radiation on a scatter signal, including deriving, using an empirically based correction which includes the effect of an angle of incidence of the radiation on the detector, an estimate of the scatter signal in image data derived from the incident radiation on the detector.

[c10] A computer readable medium as set forth in claim 9, wherein the program is further configured to instruct the computer to calibrate the scatter signal depending on an angle of incidence of radiation and a thickness of the imaged object.

[c11] A computer readable medium as set forth in claim 9, wherein the program is further configured to instruct the computer to re-normalize the scatter signal

depending on an angle of incidence of radiation and a thickness of the imaged object.

[c12] A computer readable medium as set forth in claim 9, wherein the program is further configured to instruct the computer to correct scatter from the image using inverse-filtering.

[c13] A computer readable medium as set forth in claim 9, wherein the program is further configured to instruct the computer to subtract the estimate of the scatter signal from a total image derived using data based on the radiation incident on the detector, and obtain an image which is scatter corrected.

[c14] A computer readable medium encoded with a program executable by a computer for estimating scatter in an image wherein radiation from a radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, said program being configured to instruct the computer to:

explicitly model the effect of angular incidence of radiation in a scatter signal;

re-normalize the scatter signal depending on the angle of incidence of radiation and the thickness of the object imaged; and

correct scatter from an image based on inverse-filtering.

[c15] A computer readable medium encoded with a program executable by a computer for estimating scatter in an image wherein radiation from a radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, said program being configured to instruct the computer to:

explicitly model the effect of angular incidence of X-ray radiation in a scatter signal; and

calculate, via convolution, an estimate of the scatter signal in an X-ray image.

[c16] A computer readable medium encoded with a program executable by a computer for estimating scatter in an image wherein radiation from a radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, said program being configured to instruct the

computer to modify scatter that would be derived wherein the radiation is directly incident on the detector with zero degrees of inclination, using an asymmetry factor which indicates the shape and magnitude of the scatter kernel and which varies with an angle at which the radiation is incident on the detector, a mean attenuation coefficient of the object, and a distance the radiation has traveled through the object.

[c17] An imaging system comprising:
a radiation source and a detector array, wherein the radiation source and the detector array are movable relative to one another;
a computer coupled to the detector array and the radiation source and configured to estimate scatter in an image wherein radiation from a radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, by explicitly modeling an effect of angular incidence of the radiation on a scatter signal, including deriving, using an empirically based correction which includes the effect of an angle of incidence of the radiation on the detector, an estimate of the scatter signal in image data derived from the incident radiation on the detector.

[c18] An imaging system as set forth in claim 17, wherein the computer is further configured to calibrate the scatter signal depending on an angle of incidence of radiation and a thickness of the imaged object.

[c19] An imaging system as set forth in claim 17, wherein the computer is further configured to re-normalize the scatter signal depending on an angle of incidence of radiation and a thickness of the imaged object.

[c20] An imaging system as set forth in claim 17, wherein the computer is further configured to correct scatter from the image using inverse-filtering.

[c21] An imaging system as set forth in claim 17, wherein the computer is further configured to subtract the estimate of the scatter signal from a total image derived using data based on the radiation incident on the detector, and obtain an image which is scatter corrected.

[c22] An imaging system for estimating scatter in an image wherein radiation from a

radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, said system including a computer configured to:

explicitly model the effect of angular incidence of radiation in a scatter signal;

re-normalize the scatter signal depending on the angle of incidence of radiation and the thickness of the object imaged; and

correct scatter from an image based on inverse-filtering.

[c23] An imaging system for estimating scatter in an image wherein radiation from a radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, said system including a computer configured to:

explicitly model the effect of angular incidence of X-ray radiation in a scatter signal; and

calculate, via convolution, an estimate of the scatter signal in an X-ray image.

[c24] An imaging system for correcting asymmetrical scatter in an image wherein radiation from a radiation source is transmitted through an object to be imaged and is incident on a detector at an inclined angle, said system including a computer configured to:

to modify scatter that would be derived wherein the radiation is directly incident on the detector with zero degrees of inclination, using an asymmetry factor which indicates the shape and magnitude of the scatter kernel and which varies with an angle at which the radiation is incident on the detector, a mean attenuation coefficient of the object, and a distance the radiation has traveled through the object.